

**Amendment to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (original) A curable polymer comprising the partially polymerized product of at least one cyclobutarene monomer wherein the product comprises a pendant group comprising a —COOH moiety in amounts defined by equivalent weights in the range of about 200 to about 330 g/mole of —COOH moiety.
2. (original) The polymer of claim 1 wherein the equivalent weight is in the range of about 220 to about 300 g/mole of acid functionality.
3. (original) The polymer of claim 1 wherein the equivalent weight is in the range of about 230 to about 270 g/mole of acid functionality.
4. (original) The polymer of claim 1 wherein the polymerization occurs in a solvent selected from di(propylene glycol) methyl ether acetate isomers; toluene; xylene; mesitylene; alcohols having from 3 to 6 carbon atoms; methylcyclohexanone; N-methylpyrrolidone; butyrolactone; and dipropylene glycol dimethyl ether isomers.
5. (original) The polymer of claim 1 having a molecular weight in the range of 1000 to about 50,000 grams/mol.
6. (original) The polymer of claim 1 having a molecular weight in the range of 1500 to 25,000 grams/mol.
7. (original) The polymer of claim 1 having a molecular weight in the range of 2000 to 15,000 grams/mol.
8. (original) A photoreactive polymeric composition comprising the polymer of claim 1 and a photoactive composition such that the polymeric composition is

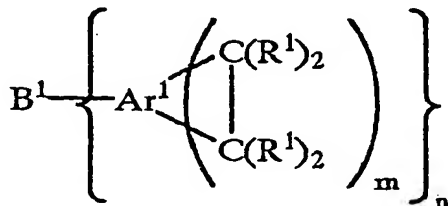
rendered either soluble or insoluble upon exposure to activating wavelengths of radiation.

9. (original) The polymeric composition of claim 8 wherein the photoactive composition comprises a dissolution inhibitor such that the polymeric composition is rendered soluble upon exposure to activating radiation.

10. (original) The composition of claim 9 wherein the photoactive composition comprises a compound selected from sulfonyl esters of trihydroxybenzophenone and cumyl phenol.

11. (original) The composition of claim 8 wherein the photoactive composition comprises a photo-initiator that initiates further cure of the polymer upon exposure to activating radiation.

12. (original) The composition of claim 8 wherein the polymer or oligomer is the partially polymerized product of monomers comprising (a) a cyclobutarene monomer having the formula:



wherein

$B^1$  is an n-valent organic linking group,

$\text{Ar}^1$  is a polyvalent aromatic or heteroaromatic group and the carbon atoms of the cyclobutane ring are bonded to adjacent carbon atoms on the same aromatic ring of  $\text{Ar}^1$ ;

m is an integer of 1 or more;

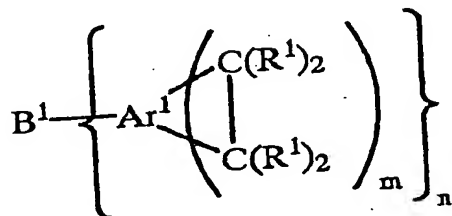
n is an integer of 1 or more; and

$\text{R}^1$  is a monovalent group; and

(b) is a cyclobutarene monomer comprising a  $-\text{COOH}$  moiety.

13. (original) The polymer of claim 1, which is the partially polymerized product of monomers comprising:

(a) a cyclobutarene monomer having the formula:



wherein

$B^1$  is an n-valent organic linking group;

$Ar^1$  is a polyvalent aromatic or heteroaromatic group and the carbon atoms of the cyclobutane ring are bonded to adjacent carbon atoms on the same aromatic ring of  $Ar^1$ ;

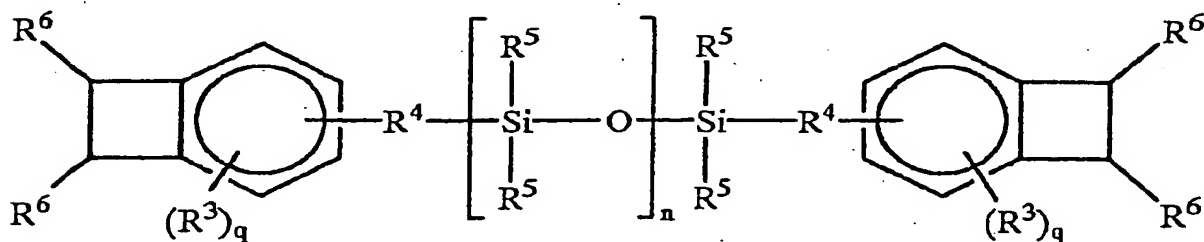
m is an integer of 1 or more;

n is an integer of 1 or more; and

$R^1$  is a monovalent group; and

(b) a cyclobutarene monomer comprising a  $-\text{COOH}$  moiety.

14. (original) The polymer of claim 13 wherein monomer (a) has the following formula:

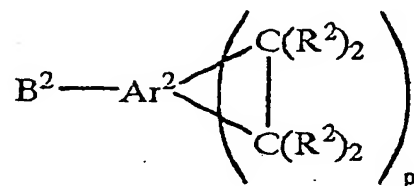


wherein each  $R^3$  is independently an alkyl group of 1-6 carbon atoms, trimethylsilyl, methoxy or chloro; each  $R^4$  is independently a divalent, ethylenically unsaturated organic group; each  $R^5$  is independently hydrogen, an alkyl group of 1 to 6 carbon atoms, cycloalkyl, aralkyl or phenyl; each  $R^6$  is independently hydrogen, an alkyl

group of 1 to 6 carbon atoms, chloro or cyano; n is an integer of 1 or more; and each q is an integer of 0 to 3.

15. (original) The polymer of claim 14 wherein  $R^4$  is  $-\text{CH}_2=\text{CH}_2-$ ,  $R^5$  is methyl,  $R^6$  is hydrogen, n is 1 and q is 0.

16. (original) The polymer of claim 13 wherein the monomer (b) has the following formula:



wherein

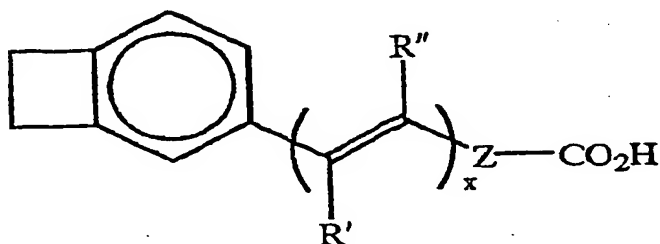
$\text{B}^2$  is a monovalent organic group comprising a  $-\text{COOH}$  moiety;

$\text{Ar}^2$  is a polyvalent aromatic or heteroaromatic group and the carbon atoms of the cyclobutane ring are bonded to adjacent carbon atoms on the same aromatic ring of  $\text{Ar}^2$ ;

p is an integer of 1 or more; and

$\text{R}^2$  is a monovalent group.

17. (original) The polymer of claim 13 wherein monomer (b) has the formula:



wherein

$\text{R}'$  and  $\text{R}''$  are independently selected from hydrogen, alkyl groups of 1 to 6 carbon atoms, aryl groups, or  $\text{R}'$  and  $\text{R}''$  taken together from a cyclic group of 4 to 8

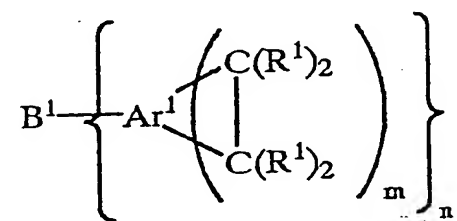
carbon atoms;

Z is a carbon-to-carbon bond or an aryl group; and

x is an integer from 0 to 3.

18. (original) The polymer of claim 1, which is the partially polymerized product of monomers comprising:

(a) a cyclobutarene monomer having the formula:



wherein

$B^1$  is an n-valent organic linking group;

$Ar^1$  is a polyvalent aromatic or heteroaromatic group and the carbon atoms of the cyclobutane ring are bonded to adjacent carbon atoms on the same aromatic ring of  $Ar^1$ ;

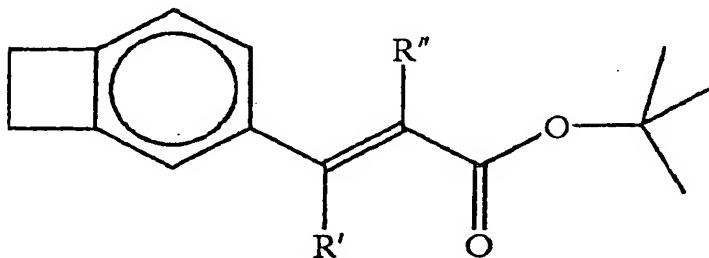
m is an integer of 1 or more;

n is an integer of 1 or more; and

$R^1$  is a monovalent group; and

(b') is a cyclobutarene monomer having a pendant group, which at least partially converts to a carboxylic acid moiety during the polymerization process or by hydrolysis.

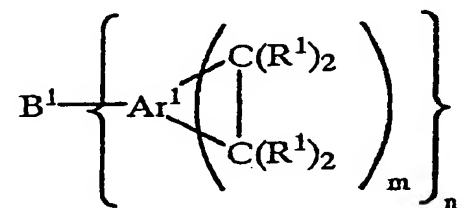
19. (original) The polymer of claim 18 wherein (b') has the formula



wherein R' and R'' are independently selected from hydrogen, alkyl groups of 1 to 6 carbon atoms, aryl groups, or R' and R'' taken together from a cyclic group of 4 to 8 carbon atoms.

20. (original) A process for making the polymer of claim 1 comprising the steps of

(1) combining, in a solvent selected from di(propylene glycol) methyl ether acetate isomers; toluene; xylene; mesitylene; alcohols having from 3 to 6 carbon atoms; methylcyclohexanone; N-methylpyrrolidone; butyrolactone; and dipropylene glycol dimethyl ether isomers, a monomer (a) having the formula



wherein

B<sup>1</sup> is an n-valent organic linking group,

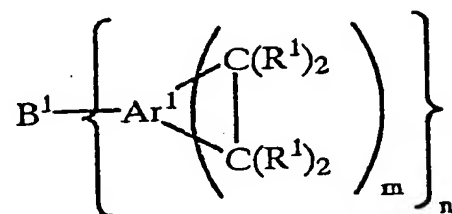
Ar<sup>1</sup> is a polyvalent aromatic or heteroaromatic group and the carbon atoms of the cyclobutane ring are bonded to adjacent carbon atoms on the same aromatic ring of Ar<sup>1</sup> ;

m is an integer of 1 or more;

n is an integer of 1 or more;

with a monomer selected from monomer (b), which is a cyclobutarene monomer comprising a carboxylic acid moiety and the monomer (b'), which is a cyclobutarene monomer having a pendant group, which at least partially converts to a carboxylic acid moiety during the polymerization process; and  
 (2) heating the combination to react with the monomers.

21. (original) A partially polymerized product of monomers comprising a cyclobutarene monomer (a) having the formula:



wherein

$B^1$  is an n-valent organic linking group;

$Ar^1$  is a polyvalent aromatic or heteroaromatic group and the carbon atoms of the cyclobutane ring are bonded to adjacent carbon atoms on the same aromatic ring of  $Ar^1$ ;

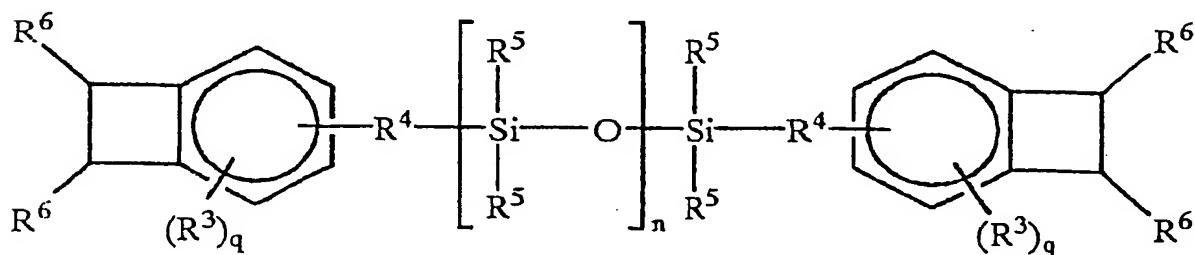
m is an integer of 1 or more;

n is an integer of 1 or more; and

$R^1$  is a monovalent group; and

(b') is a cyclobutarene monomer having a pendant group, which at least partially converts to a carboxylic acid during the polymerization process.

22. (original) A curable polymer comprising the partially polymerized product of (a) a monomer of the formula:



wherein

each  $R^3$  is independently an alkyl group of 1-6 carbon atoms, trimethylsilyl, methoxy or chloro;

each  $R^4$  is independently a divalent, ethylenically unsaturated organic each  $R^5$  is independently hydrogen, an alkyl group of 1 to 6 carbon atoms, cycloalkyl, aralkyl or phenyl;

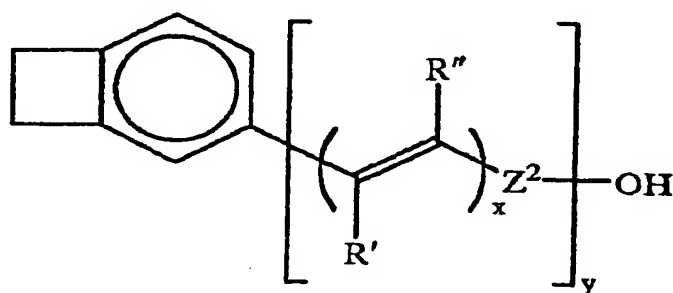
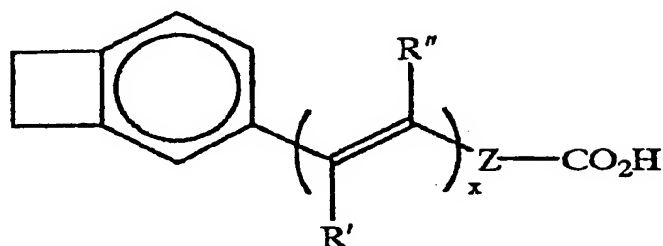
each  $R^6$  is independently hydrogen, an alkyl group of 1 to 6 carbon atoms, chloro or

cyano;

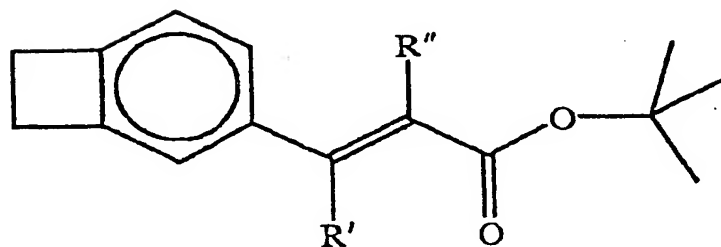
n is an integer of 1 or more; and

each q is an integer of 0 to 3; and

(b) is a monomer of one of the following formulas:



and



wherein

R' and R'' are independently selected from hydrogen, alkyl groups of 1 to 6 carbon



atoms, aryl groups, or R' and R'' taken together from a cyclic group of 4 to 8 carbon atoms;

Z is a carbon-to-carbon bond or an aryl group;

x is an integer from 0 to 3;

y is 0 or 1; and

Z<sup>2</sup> is an aryl group.

23. Cancelled.

24. Cancelled.

25. (new) A curable polymer comprising the partially polymerized product of at least one cyclobutarene monomer wherein the product comprises acid functionality in amounts defined by equivalent weights in the range of about 200 to about 434 g/mole of acid functionality.

26. (new) A curable polymer comprising the partially polymerized product of at least one cyclobutarene monomer wherein the product comprises acid functionality in amounts defined by equivalent weights in the range of about 200 to about 564 g/mole of acid functionality.